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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,280	10/31/2001	David A. Brown	2037.2016-001	3813
21005	7590	05/03/2005	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			LE, TRAN Q	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,280

Applicant(s)

BROWN, DAVID A.

Examiner

Tran Q. Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-13, 17-22, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 5-7, 14-16, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>March 21, 2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 10-13, 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Romanov (US Patent No. 6,434,144).

Regarding claims 1, 10 and 19, Romanov discloses a method for updating a multi-level lookup table (abstract) comprising the steps of:

providing a default route memory for storing a default route for a subtree (col. 2, lines 39-40);

sharing the default route by nodes in the subtree (col. 3, lines 54-63); and

modifying the default route by performing a single write to the default route memory (col. 3, lines 54-63 and col. 4, lines 61-67, updates are done by pipelining and limited to a single stage, therefore it's a single write).

Regarding claims 2, 11 and 20, Romanov discloses the default route memory stores a route corresponding to the route associated with the root of the subtree (col. 3, lines 25-42, it is inherent that a default route should correspond to the route associated with the root of the subtree).

Regarding claims 3, 12 and 21, Romanov discloses the default route memory (col. 2, lines 39-40) stores an inherit indicator (default value designator) to indicate that the default route corresponding to the route associated with the root of the subtree is inherited from another subtree (col. 3, lines 54-63).

Regarding claims 4, 13 and 22, Romanov discloses the inherited default route is forwarded by a default index pipeline (col. 3, lines 59-63).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 9, 17, 18, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romanov (US Patent No. 6,434,144).

Regarding claims 8, 9, 17, 18, 25 and 26, Romanov discloses a multi-level data structure (fig. 2) and a default route memory (421, 521, 551, fig. 9 and col. 13, lines 54-col. 14, lines 9) associated with the subtree (layer) stores the default route (col. 2, lines 39-40 and col. 3, lines 54-63), but he does not teach the subtree (layer) is a sparse subtree, the number of routes in the sparse subtree is one or greater than one, and a default route memory associated with the sparse subtree stores the default route.

However, the multi-level data structure of Romanov suggests that it could be a sparse subtree (layer) with the number of routes of one or greater than one.

Therefore, it would have been obvious to have a sparse subtree with the number of routes of one or greater than one implemented in the multi-level data structure of Romanov in order to provide a case of a simple route mapping with a small number of routers used in the IP network.

Allowable Subject Matter

5. Claims 5-7, 14-16, and 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior arts of record still fail to teach the following limitations:

Regarding claims 5, 14 and 23, the prior arts of record still fails to teach the subtree is a dense subtree and a dense subtree descriptor associated with the subtree includes the default route memory.

Regarding claims 6, 15 and 24, the prior arts of record still fails to teach the default route is shared by storing a use default indicator in a mapper entry associated with at least one node in the subtree.

Regarding claims 7 and 16, the prior arts of record still fails to teach the step of: returning the default route as a result of a search of the lookup table upon detecting the use default indicator stored in the mapper entry.

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7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Draves et al. (US Patent No. 6,385,649) discloses a method for compressing a routing table involves constructing a binary tree representation of the routing table with multi-level routes inherited from the higher level ancestral node.

Hariguchi et al. (US Patent No. 2002/0080798) discloses a network routing table and packet routing method with one or more routing table memories storing a plurality of routing table arrays.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran Q. Le whose telephone number is (571)272-2046. The examiner can normally be reached on 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D. Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TQL



STEVEN NGUYEN
PRIMARY EXAMINER